

AIR GAP INTERCONNECT STRUCTURE AND METHOD OF MANUFACTURE

Abstract

A dual layer of polymeric material is deposited with a base layer and top layer resist onto an integrated circuit structure with topography. The base layer planarizes the surface and fills in the native topography. The base layer decomposes almost completely when exposed to an oxidizing environment. The top layer contains a high composition of oxidizing elements and is photosensitive. (i.e., the layer can be patterned by exposing normal lithographic techniques.) The patterning allows the creation of escape paths for the decomposition products of the underlying base layer. This structure is decomposed in an oxidizing ambient (or plasma) leaving behind a thin carbon-containing membrane. This membrane layer blocks deposition of future layers, creating air gaps in the structure.